PROCEEDINGS OF THE
ROYAL ENTOMOLOGICAL SOCIETY
OF LONDON

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VOLUME 25 No. 4, 1960

ORDINARY MEETING

WEDNESDAY, 1st JUNE, 1960, at 5.30 p.m. (Tea 5 p.m.)

AGENDA

1. Confirmation of the Proceedings of the Ordinary Meeting held on 4th May, 1960.
2. Recommendations of candidates for Fellowship. First reading.
3. Recommendations of candidates for Fellowship. Second reading.
4. Announcement of election of new Fellows.
5. Additions to the Library [see p. 16].
6. Admission of Fellows.
7. Exhibits.
8. Communications.

1. **Dr. J. W. Evans**

Some Homoptera of outstanding interest

[ABSTRACT]

In every Order of insects there are some which are of particular interest for one reason or another. An illustrated account will be given of some exceptionally interesting Homoptera belonging to the following families: Peloridiidae, Cicadomorphidae, Tettigarctidae, Cicadidae, Eurymelidae, Ulopidae, Hylicidae and Aetalionidae. The significance of these insects will be discussed from the point of view of evolution, comparative morphology and geographical distribution.

2. **Professor Howard A. Schneiderman** (a visitor)

The distribution in nature of substances with juvenile hormone activity and its possible significance

[ABSTRACT]

The juvenile hormone of insects promotes larval development but prevents metamorphosis. Its presence in an immature insect ensures that when the larva moults it will retain its larval characters and not differentiate into an adult. Extracts with juvenile hormone activity were first prepared from the abdomens of male *Cecropia* moths by Williams in 1956. Subsequently active extracts were prepared from adult males and females of six families of Lepidoptera as well as from eggs and larvae, and from representatives of six other orders of insects. Further investigation of other groups uncovered substances with juvenile hormone activity in extracts of the adrenals of cattle and other mammalian tissues, and in the tissues of numerous invertebrates

in 13 classes. The most active invertebrate sources were the eyestalks of crustacea and the heads of polychaetes.

Recently we have found substances with juvenile hormone activity in protozoa, bacteria, fungi and higher plants. All of these substances prevented certain tissues of young insects from assuming their adult aspect but did not interfere with growth itself. In pupae of Lepidoptera, Hemiptera and Coleoptera, local application of active extracts caused the pupal epidermal cells to lay down a second pupal cuticle whilst untreated cells nearby deposited normal adult cuticle. The evolutionary significance of this peculiar distribution of endocrinologically active substances will be discussed.

NOTICES

The next meeting will be held on *Wednesday, 6th July*, 1960 :

(1) **Professor C. D. Michener** (a visitor).—The origin and evolution of social behaviour in bees.

(2) **Dr. W. Cottier.**—Control of a weed (" Manuka ") in New Zealand by a Coccid, *Eriococcus orariensis* Hoy.

PROCEEDINGS OF THE ORDINARY MEETING HELD ON 4TH MAY, 1960

DR. B. P. UVAROV, C.M.G., F.R.S., President, in the Chair

Present, 82 Fellows and 12 Visitors

Before the meeting formally opened the President extended a welcome to Dr. P. A. van der Laan, Head of the Laboratory of Applied Entomology in Amsterdam, and to Dr. G. N. Bhatia, Assistant Director of Plant Protection in India.

The minutes of the Ordinary Meeting held on 6th April, 1960, were confirmed and signed by the President.

The names of the following candidates for election were read for the first time : Mr. Richard K. Allen ; Mr. Colin Anderson ; Dr. David Gerald Hessayon, Ph.D., B.Sc.; Dr. Francis Godfrey Smith, D.Sc.; and Mr. Sidney George Peter Stratton.

For the second time (taken as read) : Mr. Henry James Berman ; Mr. Albert Catley, B.Sc.; Mr. Ernest Dearing, B.Sc.; Mr. Jan Heeg, B.Sc.; Mr. Vincent Clifford Moran, B.Sc.; and Mr. John Frederick Thompson.

The Secretary read the names of the following newly elected Fellows of the Society : Mr. Elwy Abdel Rahman Atalla, Department of Agricultural Zoology, University College of North Wales, Bangor ; Dr. Mohammed Sultan Khan Ghauri, Ph.D., D.I.C., Commonwealth Institute of Entomology, c/o British Museum (Natural History), Cromwell Road, London, S.W.7 ; Mr. James Andrew Grant, 33, Langley Park, Mill Hill, London, N.W.7 ; Mr. Peter Michael Hammond, 24, Beehive Lane, Chelmsford, Essex ; Mr. Mumtaz Ahmad Khan, M.Sc., Department of Zoology, Imperial College, Prince Consort Road, London, S.W.7 ; Mr. Muhammad Rafiq Khan, Department of Agricultural Zoology, University College of North Wales, Bangor ; Mr. William Frederick Nolde, 83 Hazelbank Road, Catford, London, S.E.6 ; Dr. Philip Osborne, Edinburgh School of Agriculture, West Mains Road, Edinburgh, 9 ; and Mr. John Philip Spradbery, 11, Penymaes Avenue, Wrexham, North Wales.

Thanks were voted to donors to gifts to the Library since the last meeting.

Mr. S. Apeji, Group Captain L. W. Burgess, Mr. J. McCallum Deighton, Mr. M. A. Khan, Mr. R. F. Markey, Mr. G. Pritchard and Mr. J. P. Spradbery signed the Obligation Book and were admitted Fellows of the Society.

The following papers, accepted for publication in the *Transactions*, were read in title :

" A study of captures of Trichoptera in a light trap near Reading ", by M. I. Crichton.

" Key to third instar larvae of some species of Syrphidae (Diptera) occurring in Britain ", by T. J. Dixon. [Communicated by Professor O. W. Richards.]

"The *Meligethes* of East Africa (Coleoptera : Nitidulidae) ", by A. M. Easton.

" A revision of the Melitaeine genus *Chlosyne* and allied species (Lepidoptera : Nymphalidae) ", by L. G. Higgins.

" The ovulation cycle in *Glossina morsitans* Westwood (Diptera) and a possible method of age determination for female tsetse flies by the examination of their ovaries ", by D. S. Saunders.

" New Psocidae and an aberrant new Myopsocid (Psocoptera) ", by I. W. B. Thornton.

Dr. C. G. Butler gave a paper describing further work on queen substance, an abstract of which appeared on page 9.

In the discussion which followed Dr. K. Mellanby asked whether worker bees whose ovaries have developed sufficiently for them to lay eggs produce queen substance. Dr. Butler replied that he had not succeeded in demonstrating that they do.

In reply to Mr. M. E. Solomon, who asked whether there was anything in queen substance which could be detected by the human palate, Dr. Butler said that he did not know.

Mr. E. B. Britton said he was interested in the speed with which the bees reacted to the presence or absence of a queen. The work by Ribbands and Nixon with radioactive tracers showed that the transfer of food through the hive took quite a long time, 50 per cent. of the bees having shared the food in 24 hours. On the other hand, queenless bees when given a queen lost their restlessness in a very much shorter time, which suggested that there were some other factors in addition to the sharing of queen substance. Dr. Butler said that the substance seemed to reach most of the workers within 2–4 hours. He also said, in reply to an enquiry by Dr. Mellanby, that some 30 or 40 bees per hour licked the queen on occasion, but the number was very variable, as shown by the work of Miss Delia Allen.

Professor G. C. Varley asked if there was any evidence that the scent of the substance played any part, to which Dr. Butler replied that pure queen substance had been found to have no olfactory attraction to worker honeybees.

Professor Richards asked if there was any evidence that the oviposition rate of the queen played any part in the control of supersedure, to which Dr. Butler replied that there was none, and that even mated queens that were not laying at all were often not superseded.

Dr. P. T. Haskell asked if acoustic signals played any part, and mentioned some American work which touched on this subject. Dr. Butler replied that he was dubious about any correlation between sound signals and supersedure. In reply to an enquiry as to whether any movements by worker bees indicated the presence of the queen, Dr. Butler said there was no evidence of this. He added that it was important to realise that " recognition " of the presence of the queen appeared to have nothing to do with queen rearing by her workers—the queen rearing depending entirely on the amount of queen substance the workers obtained.

Dr. T. R. E. Southwood and **Dr. R. E. Blackith** gave a paper on inter- and intraspecific variation in the mirid genus *Plagiognathus*, an abstract of which appeared on pages 9 and 10.

In the discussion which followed the President asked if there had been any attempt at crossbreeding the two species. Dr. Southwood replied that he had felt this was not altogether a first necessity in this case and that it was more important to be able to change the form of the population than to demonstrate that these close species could be crossed, especially as crossbreeding might be difficult and closely allied species might be expected to interbreed or at any rate to mate. The present paper was in any case in the nature of a progress report and the work was continuing.

Mr. Dennis Leston commented that he believed that this was only one case of this particular type of problem in the British Heteroptera. Variation took different forms, of which he gave instances, in different types of bugs, and it would be desirable to put the present work in perspective. He asked why Dr. Southwood had measured all the antennal segments and whether there was any reason why the total length was not sufficient. Dr. Blackith replied that if several types of variation were being included it was important to have as wide a range of measurements as possible ; the second and third antennal segments served a particular purpose and they had followed Wagner in making these measurements in the hope of picking up enough information to appreciate the sources of variation.

Professor O. W. Richards said he thought the success or failure of crossing was nevertheless very important. If a genetic difference was suspected to be associated with different host plants, it was important to be able to demonstrate it. Dr. Southwood replied that the range of variation of bugs on different species of *Artemisia* in the same plot suggested great potential variability within one stock. He also said, in reply to an enquiry by the President, that the first instar was always used in the transfer and the individuals studied were the progeny of the transferred larvae.

Professor Richards called attention to the desirability of ensuring that experimental and taxonomic work did not become too involved with each other. Taxonomy should be confined to wild caught specimens and peculiar specimens should not always be used to disprove the existence of two species.

Dr. N. Waloff enquired whether more than one species of the host plant occurred in the same habitat and whether the conditions of the host plants affected the colour patterns in the *Plagiognathus*. In reply Dr. Southwood said that *A. vulgaris* and *A. maritima* were both perennial, and could occur within a few yards of one another in coastal regions. The condition of the host plant was an important question and he and Dr. Blackith were hoping to do further studies on this topic.

Mr. Leston pointed out that another member of the genus, *P. arbustorum*, was a partial predator, and he wondered if this applied to *P. albipennis*. Dr. Southwood replied that *P. albipennis* was entirely phytophagous and was placed in a separate subgenus to the carnivorous species.

PAUL FREEMAN, *Honorary Secretary.*

ADDITIONS TO THE LIBRARY

Purchased

CHIESA, A. *Hydrophilidae Europae. Coleoptera Palpicornia* : *Tabelle di determinazione.* 8vo. Bologna, 1959.

Coleopterorum Catalogus. Supplementa. ed. W. D. Hincks.
  8. *Lucanidae* : B. Benesh. 2nd ed. 1960.
  53. (10). *Chrysomelidae* : *Lamprosomatinae* : F. Monrós. 2nd ed. 1960. 8vo. 's-Gravenhage : Junk.

Faune de Madagascar.
  4. *Insectes Coléoptères* : *Cerambycidae, Lamiinae*, par S. Breuning. 1957.
  5. — — *Mantodea*, par R. Paulian. 1957.
  6. — — *Coléoptères* : *Anthicidae*, par P. Bonadona. 1958.
  7. — — *Hémiptères Enicocephalidae*, par A. Villiers. 1958.
  8. — — *Lépidoptères* : *Sphingidae*, par. P. Griveaud. 1959.
  8vo. Tananarive : Inst. Recherche. Scientifique.

STICHEL, H. W. *Illustrierte Bestimmungstabellen der Wanzen.* II. *Europa* (*Hemiptera Heteroptera Europae*). vol. 3, Heft 8. 8vo. Berlin-Hermsdorf, 1960.

In addition, separates have been presented by Dr. A. Neboiss ; Professor T. Jaczewski; United States Department of Agriculture ; Dr. W. J. Le Quesne ; Mr. J. Muspratt ; American Entomological Society ; Dr. E. T. Nielsen ; Mr. G. B. Wiggins ; Mr. G. A. H. McClelland ; Dr. J. L. Gressitt and Mr. N. A. Weber ; Mr. E. L. Martin ; Mr. F. D. Buck ; Dr. J. H. Sudd, Professor D. K. McE. Kevan, Mr. R. S. George and Professor F. J. O'Rourke.

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